



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,646	03/16/2001	Shunpei Yamazaki	12732-021001 / US4802	5011

26171 7590 05/22/2003

FISH & RICHARDSON P.C.  
1425 K STREET, N.W.  
11TH FLOOR  
WASHINGTON, DC 20005-3500

EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 05/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/809,646

Applicant(s)

YAMAZAKI ET AL.

Examiner

Thoi V Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11, 13, 15, 26-28 and 30 is/are pending in the application.
- 4a) Of the above claim(s) 10, 12, 14, 16-21, 23-25, 29 and 31-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 13, 15, 26-28 and 30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6-8 & 12.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This office action is in response to the Preliminary Amendment, Paper No. 8, filed March 16, 2001.

Accordingly, claim 22 was cancelled, and new claims 26-35 were added. Currently, claims 1-21 and 23-35 are pending in this application.

### ***Election/Restrictions***

2. Applicant's election without traverse of Group I (claims 1-22 and 26-35) in Paper No. 13 is acknowledged. However, Applicant was required to elect a single species if Group I is elected. During a telephone conversation with John F. Hayden (Reg. No. 37,640) on April 04, 2003, a provisional election was made without traverse to prosecute the invention of Species IA, claims 3, 6, 9, 11, 13, 15, 28 and 30. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 1, 2, 4, 5, 7, 8, 26 and 27 are generic and will be examined along with Species IA in this office action. Claims 10, 12, 14, 16-21, 23-25, 29, and 31-35 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Specification***

3. The disclosure is objected to because of the following informalities: In page 31, line 12, 19 and 22, "source region 360" should be --source region 340-- and "drain region 361" should be --drain region 341-- as shown in Fig. 4C.

Appropriate correction is required.

***Claim Objections***

4. Claim 15 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 15 is improperly dependent on claim 13 since it recites the same limitation as claim 13.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1-9, 11, 13, 15, 26-28 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki (USPN 6,365,917 B1).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

Art Unit: 2871

under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

With respect to claims 1-3, as shown in Figs. 3-5, Yamazaki discloses a liquid crystal display device comprising:

a semiconductor layer 102 formed on an insulating surface 103, said semiconductor layer having a channel forming region 114, an LDD region 115-118 and source and drain regions 112 and 113;

a gate insulating film 103 formed on said semiconductor layer:

a first gate electrode 108 formed on said gate insulating film, said first gate electrode having a tapered shape in cross section at an edge portion;

a second gate electrode 107 formed on said first gate electrode,

wherein the width of said first gate electrode in the longitudinal direction of said channel forming region is larger than that of said second gate electrode;

wherein said LDD region overlaps with said first gate electrode with said gate insulating film interposed therebetween; and

wherein said channel forming region overlaps with said second gate electrode with said gate insulating film interposed therebetween.

With respect to claim 11, as shown in Fig. 19, Yamazaki discloses a liquid crystal display LCD) device comprising:

Art Unit: 2871

a pixel TFT 1702 (shown in Fig. 2C) and a driver circuit TFT 1901 (shown in Figs 10A-10F), each having a semiconductor layer 102 formed on an insulating surface 101, a gate insulating film 102 formed on said semiconductor layer a first gate electrode 108 formed on said gate insulating film, and a second gate electrode 107 formed on said first gate electrode 25 (Figs. 3 and 4);

wherein said semiconductor layer of said pixel TFT comprises (Figs. 3 and 4):

a channel forming region 114 overlapping with said second gate electrode with said gate insulating film interposed therebetween;

a first LDD region 115, 116 contacting said channel forming region and overlapping with said first gate electrode with said gate insulating film interposed therebetween;

a second LDD region 117, 118 contacting said first LDD region;

a source region 112 and a drain region 113 contacting said second LDD region, and

wherein said semiconductor layer of said driver circuit TFT comprises (Fig. 10):

a channel forming region overlapping with said second gate electrode with said gate insulating film interposed therebetween (Fig. 10B);

a third LDD region defined by the resist mask 60 contacting said channel forming region and overlapping with said first gate electrode with said gate insulating film interposed therebetween (Fig. 10C);

a source region 61 and a drain region 62 contacting said third LDD region (Fig. 10C), and

wherein said first gate electrode has a tapered shape in cross section at an edge portion, and wherein the width of said first gate electrode in the longitudinal direction of the channel forming region is larger than that of said second gate electrode (Fig. 5); and

With respect to claims 4-9, 13 and 15, Yamazaki discloses that the LDD region is formed in a self-aligning manner in accordance with the addition of an impurity element into said semiconductor layer with said second gate electrode as a mask (col. 16, lines 34-40),

wherein said LDD region (first or third LDD region in claims 13 and 15) contains a region having a concentration of said impurity element gradient in a range from at least  $1 \times 10^{17}$  to  $1 \times 10^{18}$  atoms/cm<sup>3</sup>, while increasing as the distance from said channel forming region increasing (col. 8, line 62 to col. 9, line 33).

Finally, with respect to claims 26-28 and 30, as intended use, Yamazaki discloses that the liquid crystal display device is incorporated into an electronic equipment selected from the group consisting of a video camera, a digital camera, a projector, a head mounted display, a game apparatus, a car navigation system, a personal computer and a portable information terminal as shown in Figs. 11, 22 and 23 (col. 25 line 63 to col. 28, line 5).

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

Application/Control Number: 09/809,646  
Art Unit: 2871

Page 7

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (703) 305-3492.

Thoi Duong



05/13/2003